

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION

Inventor(s): HAMADA

Appln. No.: 09

Series Code ↑

663,340

Serial No. ↑

Group Art Unit

2826

Examiner:

Mondi, J.

Atty. Dkt.

P 271420

TFN990143-US

M#

Client Ref

Filed: September 15, 2000

Hon. Commissioner of Patents
Washington, D.C. 20231

Sir:

REPLY/AMENDMENT/LETTERAppln. Title: POWER SEMICONDUCTOR DEVICE
AND PRODUCTION METHOD FOR
THE SAME

Date: January 18, 2002

This is a reply/amendment/letter in the above-identified application and includes the herewith attachment of same date and subject which is incorporated hereinto by reference and the signature below is treated as the signature to the attachment in absence of a signature thereto.

RECEIVED
JAN 23 2002
TECHNOLOGY CENTER
PTO 800

FEE REQUIREMENTS FOR CLAIMS AS AMENDED

1. Small Entity claim			
A. <input checked="" type="checkbox"/> NOT made	For B & C		
B. <input type="checkbox"/> Withdrawn	See Required		
C. <input type="checkbox"/> made herewith	Separate Paper		
D. <input type="checkbox"/> made previously	(Pat-256)		

	Claims remaining after amendment	Highest number previously paid for	Present Extra	Large/Small Entity	Additional Fee	Fee Code Lg/Sm
2. Total Effective Claims	16	**minus	20	0	x \$18/\$9 =	+ \$0
3. Independent Claims	2	***minus	3	0	x \$84/\$42 =	+ \$0
4. If amendment enters <u>proper</u> multiple dependent claim(s) into this application for <u>first</u> time (leave blank if this is a reissue application)		add		+ \$280/\$140 =	+ \$0	104/204
5. Original due Date: February 7, 2002	<input type="checkbox"/> NONE					
6. Petition is hereby made to extend the original due date to cover the date this response is filed for which the requisite fee is attached	(1 mo)	\$110/\$55 =				115/215
	(2 mos)	\$400/\$200 =	+ \$0			116/216
	(3 mos)	\$920/\$460 =				117/217
	(Usable only for ≤ 2mo.OA - - - 4 mos)	\$1,440/\$720=				118/218
	(Usable only for 30 day/1mo.OA - - - 5 mos)	\$1,960/\$980=				128/228
7. Enter any previous extension fee paid since above original due date and subtract		- \$0				
8.		Extension Fee Attached			+ \$0	
9. If Terminal Disclaimer attached, add Rule 20(d) official fee		+ \$110/\$55	+ \$0			148/248
10. If IDS attached requires Official Fee under Rule 97 (c),	add	+ \$180			+ \$0	126
or if Rule 97(d) Request	add	+ \$180	+ \$0			126
11. After-Final Request Fee per rules 129(a) and 17(r)		+ \$740/370	+ \$0			146/246
12. No. of additional inventions for examination per Rule 129(b).....		x \$740/370 ea	+ \$0			149/249
13. Request for Continued Examination (RCE)		+ \$740/370	+ \$0			1179/1279
14. Petition fee for			+ \$0			
15.		TOTAL FEE ENCLOSED =	\$0			

16. *If the entry in this space is less than entry in next space, the "Present Extra" result is "0".

17. **If the "Highest number previously paid for" in this space is less than 20, write "20" in this space.

18. ***If the "Highest number previously paid for" in this space is less than 3, write "3" in this space.

Our Deposit Account No. 03-3975)

(Our Order No. 20847 271420

C# M#

CHARGE STATEMENT: The Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (missing or insufficiencies only) now or hereafter relative to this application and the resulting Official Document under Rule 20, or credit any overpayment, to our Accounting/Order Nos. shown above, for which purpose a duplicate copy of this sheet is attached.

This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal sheet is filed.

Query: Is appeal deadline now? If so, file Notice of Appeals separately.

Pillsbury Winthrop LLP
Intellectual Property Group

By Atty: Paul T. Bowen

Reg. No. 38009

Sig:

Fax: (703) 905-2500

Tel: (703) 905-2020

Atty/Sec: PTB/VXK

NOTE: File this cover sheet in duplicate with PTO receipt (PAT-103A) and attachments

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF

HAMADA

Appln. No.: 09/663,340

Filed: September 15, 2000

Group Art Unit: 2826

Examiner: Mondi, J.

Title: POWER SEMICONDUCTOR DEVICE AND PRODUCTION METHOD FOR THE
SAME

January 18, 2002

* * * * *

AMENDMENT

Hon. Commissioner of Patents
Washington, D.C. 20231

Sir:

In response to the Office Action dated November 7, 2001, please enter the following amendments and remarks:

IN THE SPECIFICATION:

Please replace the paragraph beginning on page 1, line 20 and ending on page 2, line 3 with the following new paragraph:

As a power semiconductor device, an insulated gate bipolar transistor (IGBT) in which N-type emitters formed in contact with trench gates are connected by N-type semiconductor regions so as to form a ladder-shaped configuration has been proposed (e.g., in Japanese Patent Application Laid-Open No. HEI 9-270512). In this device, the emitter-contact width is reduced by forming ladder-shaped N-type semiconductor regions. In this device, the N-type emitters and the N-type semiconductor regions are formed by a single diffusion layer, and therefore, their depths are substantially equal.

Please replace the paragraph beginning on page 4, line 20 and ending on page 5, line 26 with the following new paragraph:

The power semiconductor device 20 of this embodiment, as shown in the drawings, has a body 24 of a P⁺-type semiconductor region formed on a surface of an N⁺-type epitaxial layer 22 that is formed on a substrate 21 formed by a P-type or N-type semiconductor. A